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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,560	09/21/2001	Samuel W. Sheng	01-319 / 1496.00134	5708
24319	7590	06/25/2004	EXAMINER	
LSI LOGIC CORPORATION 1621 BARBER LANE MS: D-106 LEGAL MILPITAS, CA 95035			ENG, GEORGE	
		ART UNIT		PAPER NUMBER
		2643		
DATE MAILED: 06/25/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/960,560	SHENG ET AL.
	Examiner	Art Unit
	George Eng	2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 21 September 2001.  
 2a) This action is FINAL.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-13 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-13 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date: _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>3</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

**DETAILED ACTION**

***Information Disclosure Statement***

1. The information disclosure statements filed 4/22/2002 (paper no. 2) and 12/15/2003 (paper no. 3) are identical. Due to the duplication, only the information disclosure statement filed 12/15/2003 (paper no. 3) has been considered.

***Specification***

2. The disclosure is objected to because of the following informalities: page 9, line 21, "capacitor array 204" should be --capacitor array 160-- in accordance with the specification page 8, lines 18-19.

Appropriate correction is required.

***Drawings***

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: figure 6, steps 202 and 214, the digital switched capacitor array 154; instead the specification states the digital switched capacitor array 204 (page 9, line 21). However, neither the drawing nor the specification has the corrected reference character. According to the entire specification, the reference character of the digital switched capacitor array should be 160 as shown in the specification page 8 lines 18-19. Corrected drawing sheets, or amendment to the specification to add the reference character(s) in the description, are required in reply to the Office action to

avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-7 and 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Cranford, Jr. et al. (US PAT. 5,940,441 hereinafter Cranford).

Regarding claim 1, Cranford discloses an apparatus (100, figure 1) for equalizing a communication signal (112, figure 1), i.e., an analog input, transmitted through a transmission medium (110, figure 1) comprising a first circuit (102, figure 1) for filtering the communication signal in an analog domain in response to one or more control signals (116, figure 1), a second circuit (202, figure 2) for converting the communication signal to a digital signal, and a third circuit for generating the control signals in response to the digital signal, wherein the third circuit

is configured to control skewing of the communication signal within the first circuit to partially compensate for frequency dependent effects associated with the transmission medium (col. 3 line 34 through col. 5 line 15).

Regarding claims 2-4, Cranford discloses the third circuit being configured to calibrate the first circuit and to provide back-end digital processing control over the first circuit, wherein the first circuit is configured to provide partial adaptation of the communication signal in the analog domain (col. 2 lines 18-30 and col. 3 lines 57-62).

Regarding claims 5-6, Cranford discloses the first circuit comprising a filter configured to tune the analog input signal and a processor configured to calibrate the filter, wherein the third circuit is configured to offset the filter (col. 3 lines 34-62).

Regarding claim 7, Cranford discloses the first circuit comprising a analog filter (102, figure 1), the second circuit comprising an analog-to-digital conversion circuit (202, figure 2), and the third circuit comprising a digital signal processing device (204, figure 2) to generate the control signals.

Regarding claim 9, the limitations of the claim are rejected as the same reasons set forth in claim 1.

Regarding claim 10, the limitations of the claim are rejected as the same reasons set forth in claim 1.

Regarding claim 11, the limitations of the claim are rejected as the same reasons set forth in claims 2-4.

Regarding claims 12-13, the limitations of the claim are rejected as the same reasons set forth in claims 5-6.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cranford, Jr. et al. (US PAT. 5,940,441 hereinafter Cranford) in view of English (US PAT. 5,489,879).

Regarding claim 8, Cranford discloses the filter (102, figure 4) comprising a current source, a digital switched capacitor array circuit (C, figure 4), a rectifier (G, figure 4) and an analog-to-digital converter (208, figure 2) to compensate for semiconductor process variations (col. 4 lines 9-27 and col. 7 line 1 through col. 10 line 61). Although Cranford does not specifically disclose the digitally switched capacitor array circuit, the rectifier and the analog-to-digital converter being configured to sweep over code values and determine a center value, it

is old and notoriously well known in the art of operating a filter components including the digitally switched capacitor array circuit, the rectifier and the analog-to-digital converter to compensate for frequency-dependent characteristics and provide a high quality subcarrier signal by sweeping over code values and determine a center value, thereby the subcarrier signal produced more closely matches the desire shape and center frequency, for example see English (col. 3 line 42 through col. 5 line 21). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Cranford in having the digitally switched capacitor array circuit, the rectifier and the analog-to-digital converter being configured to sweep over code values and determine a center value, as per teaching of English, because it compensates for frequency-dependent characteristics and provides a high quality subcarrier signal so that the subcarrier signal produced more closely matches the desire shape and center frequency.

### *Conclusion*

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Drost et al. (US PAT. 6,055,269) discloses an adaptive equalization technique for a communication channel (abstract). Dickey (US PAT. 6,032,028) discloses a radio transmitter apparatus for adjusting mixers under program conditions (col. 3 line 26 through col. 10 line 16). Gaudet (US PAT. 6,002,717) discloses a method for adaptive equalization using feedback indicative of under compensation (abstract). Saito (US PAT. 5,987,314) discloses a radio communication apparatus using an intermediate frequency section to convert signal from receiver into an intermediate frequency signal (abstract).

9. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks  
Washington D.C. 20231

Or faxed to:

(703) 872-9306 (for Technology Center 2600 only)

Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, V.A., Sixth Floor (Receptionist).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Eng whose telephone number is 703-308-9555. The examiner can normally be reached on Tuesday to Friday from 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A. Kuntz, can be reached on (703) 305-4870. The fax phone number for the organization where this application or proceeding is assigned is 703-308-6306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.



George Eng  
Primary Examiner  
Art Unit 2643